

⑤ PAG. 17

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① PAG. 16

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$$L = 1 \text{ m}$$

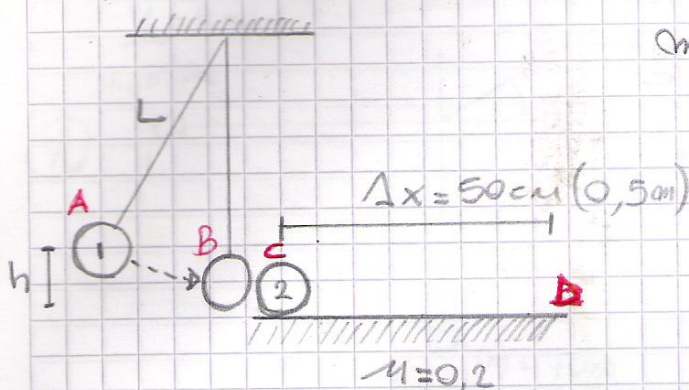
$$m_1 = 2 \text{ kg}$$

$$m_2 = 1 \text{ kg}$$

$$h = ?$$

$$V_B = ?$$

$$\omega_B = ?$$



a) $E_{mA} = E_{mB}$ $A = \begin{cases} E_A = 0 \\ E_{pA} \neq 0 \end{cases}$ $B = \begin{cases} E_B \neq 0 \\ E_{pB} = 0 \end{cases}$

3) $m_1 \cdot g \cdot h = \frac{1}{2} m_1 V_A^2$

Analizăm V_1' & V_2' con WFNC = ΔE_{m}

$$F_r \cdot \Delta x \cdot \cos 180 = E_{mB} - E_{mC} \Rightarrow (m_2 \cdot g \cdot \mu \cdot 0,5) = \frac{1}{2} m_2 (V_2')^2$$

$$V_2' = \sqrt{\frac{g \cdot \mu \cdot 0,5}{1/2}} \Rightarrow V_2' = 1,41 \text{ m/s} \rightarrow V_C$$

$K=1$ $K = -\frac{(V_1' + V_2')}{V_1 - V_2} \Rightarrow V_1 - V_2 = -V_1' + V_2' \Rightarrow V_1 - V_2 - V_2' = -V_1'$

$$V_1' = -V_1 + V_2 + V_2' \Rightarrow V_1' = 1,41 \text{ m/s} - V_1 \quad (2)$$

$$m_1 V_1 = m_1 V_1' + m_2 V_2' \Rightarrow m_1 V_1 = m_1 (1,41 \text{ m/s} - V_1) + m_2 V_2' \Rightarrow$$

$$m_1 V_1 = m_1 \cdot 1,41 \text{ m/s} - m_1 V_1 + m_2 V_2' \Rightarrow m_1 V_1 + m_1 V_1 = m_1 \cdot 1,41 \text{ m/s} + m_2 V_2'$$

$$V_1 (m_1 + m_1) = m_1 \cdot 1,41 \text{ m/s} + m_2 V_2' \Rightarrow V_1 = \frac{2,82 + 1,41}{4} \Rightarrow V_1 = 1,05 \quad (b) \quad V_A$$

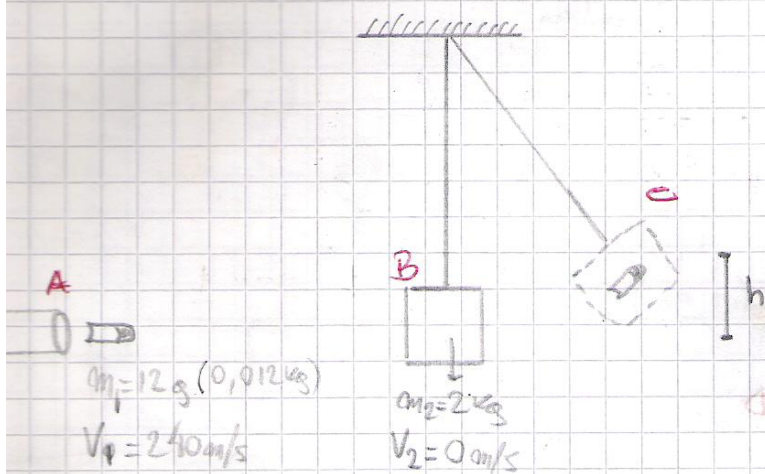
$$V_1' = 1,41 - 1,05 \Rightarrow V_1' = 0,36 \text{ m/s} \quad V_B$$

3) $mgh = \frac{1}{2} m(V_B)^2 \Rightarrow h = \frac{\frac{1}{2} m(V_B)^2}{mg} \Rightarrow h = 0,055 \text{ m} \rightarrow 5,6 \text{ cm}$

c) $\omega = \frac{v}{r} \Rightarrow \omega = \frac{v}{L}$

$$\omega = \frac{V_1}{1 \text{ m}} \Rightarrow \omega = 1,05 \text{ rad/s}$$

6) PÁG. 17



$$m_1 V_1 + m_2 V_2 = (m_1 + m_2) V_1'$$

$$\frac{m_1 V_1}{(m_1 + m_2)} = V_1' \Rightarrow V_1' = \frac{2,88}{2,012} \Rightarrow V_1' = 1,43$$

$$E_{\text{ANTES}} = E_A + E_B \Rightarrow E_{\text{ANTES}} = \frac{1}{2} m_1 (V_1)^2 + \frac{1}{2} m_2 (V_2)^2$$

$$E_{\text{ANTES}} = \frac{1}{2} 0,012 \text{ kg} \cdot 57600 \text{ m}^2/\text{s}^2$$

$$E_{\text{ANTES}} = 345,6 \text{ J}$$

$$E_{\text{DEPUES}} = E_C \Rightarrow E_{\text{DEPUES}} = \frac{1}{2} (m_1 + m_2) (V_1')^2$$

$$E_{\text{DEPUES}} = 2,05 \text{ J}$$

Por WFc, $E_{mB} = E_{mc}$

$$B = \begin{cases} E_C \neq 0 \\ E_P = 0 \end{cases} ; C = \begin{cases} E_C = 0 \\ E_P \neq 0 \end{cases}$$

$$\frac{1}{2} (m_1 + m_2) (V_1')^2 = (m_1 + m_2) g \cdot h \Rightarrow h = \frac{\frac{1}{2} (m_1 + m_2) 2,04}{20,12}$$

$$h = 0,02 \text{ m (2 cm)}$$